CLAIMS:

1. A method of forming silicon-doped aluminum oxide, comprising:

co-evaporating aluminum oxide and silicon monoxide; and

depositing at least some of the evaporated aluminum oxide and silicon monoxide on a substrate to form the silicon-doped aluminum oxide on the substrate.

2. The method of claim 1 wherein the co-evaporating and depositing are conducted in a chamber, and wherein there is no O_2 flowed into the chamber during the co-evaporation and deposition.

3. The method of claim 1 wherein the co-evaporating comprises thermal evaporation of the aluminum oxide from single crystal sapphire.

4. The method of claim 1 wherein the co-evaporating comprises thermal evaporation of the silicon monoxide.

5. The method of claim 1 wherein the co-evaporating comprises ion beam evaporation of the aluminum oxide.

6. The method of claim 1 wherein the co-evaporating comprises electron gun evaporation of the aluminum oxide.

7. The method of claim 1 wherein the co-evaporating comprises:

thermal evaporation of the silicon monoxide; and

one or both of electron gun evaporation and ion beam evaporation of the aluminum oxide.

8. The method of claim 1 wherein the substrate comprises silicon.

9. The method of claim 1 wherein the substrate comprises monocrystalline silicon.

10. The method of claim 1 wherein the substrate comprises a semiconductive material, and further comprising forming a conductive material on the deposited silicon-doped aluminum oxide; the conductive material being separated from the semiconductive material by the silicon-doped aluminum oxide.

11. A method of forming silicon-doped aluminum oxide comprising:

forming a vapor mixture of aluminum oxide and silicon monoxide; and

co-condensation of the aluminum oxide and silicon monoxide on a substrate to form the silicon-doped aluminum oxide on the substrate.

12. The method of claim 11 wherein the deposition is conducted in a chamber, and wherein there is no O_2 flowed into the chamber during the deposition.

13. The method of claim 11 wherein the substrate comprises silicon.

14. The method of claim 11 wherein the substrate comprises monocrystalline silicon.

15. The method of claim 11 wherein the substrate comprises a semiconductive material, and further comprising forming a conductive material on the deposited silicon-doped aluminum oxide; the conductive material being separated from the semiconductive material by the silicon-doped aluminum oxide.

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16. A method of forming a transistor, comprising:

forming an insulating layer of silicon-doped aluminum oxide over a substrate, the forming the insulating layer of silicon-doped aluminum oxide comprising:

co-evaporation of aluminum oxide and silicon monoxide; and

deposition of at least some of the evaporated aluminum oxide and silicon monoxide on the substrate to form the silicon-doped aluminum oxide on the substrate;

forming a patterned conductive material over the insulating layer of silicon-doped aluminum oxide; and

forming a pair of conductive source/drain regions spaced from one another by the patterned conductive material; the conductive material defining a transistor gate between the source/drain regions.

17. The method of claim 16 wherein the co-evaporation comprises:

thermal evaporation of the silicon monoxide; and

one or both of electron gun evaporation and ion beam evaporation of the aluminum oxide.

18. The method of claim 16 wherein the patterned conductive material comprises a pair of opposing sidewalls, and further comprising patterning the insulating layer of silicon-doped aluminum oxide to be coextensive with the sidewalls of the patterned conductive material.

19. The method of claim 16 wherein the patterned conductive material comprises a pair of opposing sidewalls, and further comprising patterning the insulating layer of silicon-doped aluminum oxide to be coextensive with the sidewalls of the patterned conductive material; the patterning of the insulating layer of silicon-doped aluminum oxide occurring during the patterning of the conductive material.

20. The method of claim 16 wherein the substrate comprises silicon.

21. The method of claim 16 wherein the substrate comprises monocrystalline silicon, and wherein the forming the source/drain regions comprises implanting conductivity-enhancing dopant into the monocrystalline silicon.

22. The method of claim 16 wherein the substrate comprises monocrystalline silicon, and wherein the forming the source/drain regions comprises implanting conductivity-enhancing dopant into the monocrystalline silicon and through the silicon-doped aluminum oxide.

23. A method of forming a memory device, comprising:

forming a first insulating layer over a substrate;

forming a floating gate over the first insulating layer;

forming a second insulating layer over the floating gate;

forming a control gate over the second insulating layer; and

at least one of the first and second insulating layers comprising silicon-doped aluminum oxide, and being formed by:

co-evaporation of aluminum oxide and silicon monoxide; and

deposition of at least some of the evaporated aluminum oxide and silicon monoxide to form the silicon-doped aluminum oxide.

24. The method of claim 23 wherein both of the first and second insulating layers comprise silicon-doped aluminum oxide.

25. The method of claim 23 wherein only the first of the first and second insulating layers comprises silicon-doped aluminum oxide.

26. The method of claim 23 wherein only the second of the first and second insulating layers comprises silicon-doped aluminum oxide.

27. The method of claim 23 wherein the co-evaporation and deposition is conducted in a chamber, and wherein there is no O_2 flowed into the chamber during the co-evaporation and deposition.

28. The method of claim 23 wherein the substrate comprises silicon.

29. The method of claim 23 wherein the substrate comprises monocrystalline silicon.